

## **Physics and Astronomy Faculty Members' Well-Being During the COVID-19 Pandemic**

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The COVID-19 pandemic has had a pervasive impact on the work life and personal lives of employees across the US. During the spring semester of 2021, we surveyed a sample of physics and astronomy faculty members to learn more about their experiences during the pandemic. To understand faculty members' well-being, we asked respondents to gauge their success in balancing their work and personal life and whether they felt burned out both prior to and during the pandemic. Fewer faculty members have been successfully maintaining their work-life balance during compared to before the pandemic, and although the majority of respondents in the survey at least somewhat agreed with their institutions' response to the pandemic, over 60% of physics and astronomy faculty members reported feeling burned out, a 35% increase from before the COVID-19 pandemic. Finally, 64% of responding faculty members reported being concerned about some aspect of their future roles within their department or institution. For this Focus On, we present results aggregated across individuals, departments, and institutions, except in the case of faculty members' concerns for their professional futures.

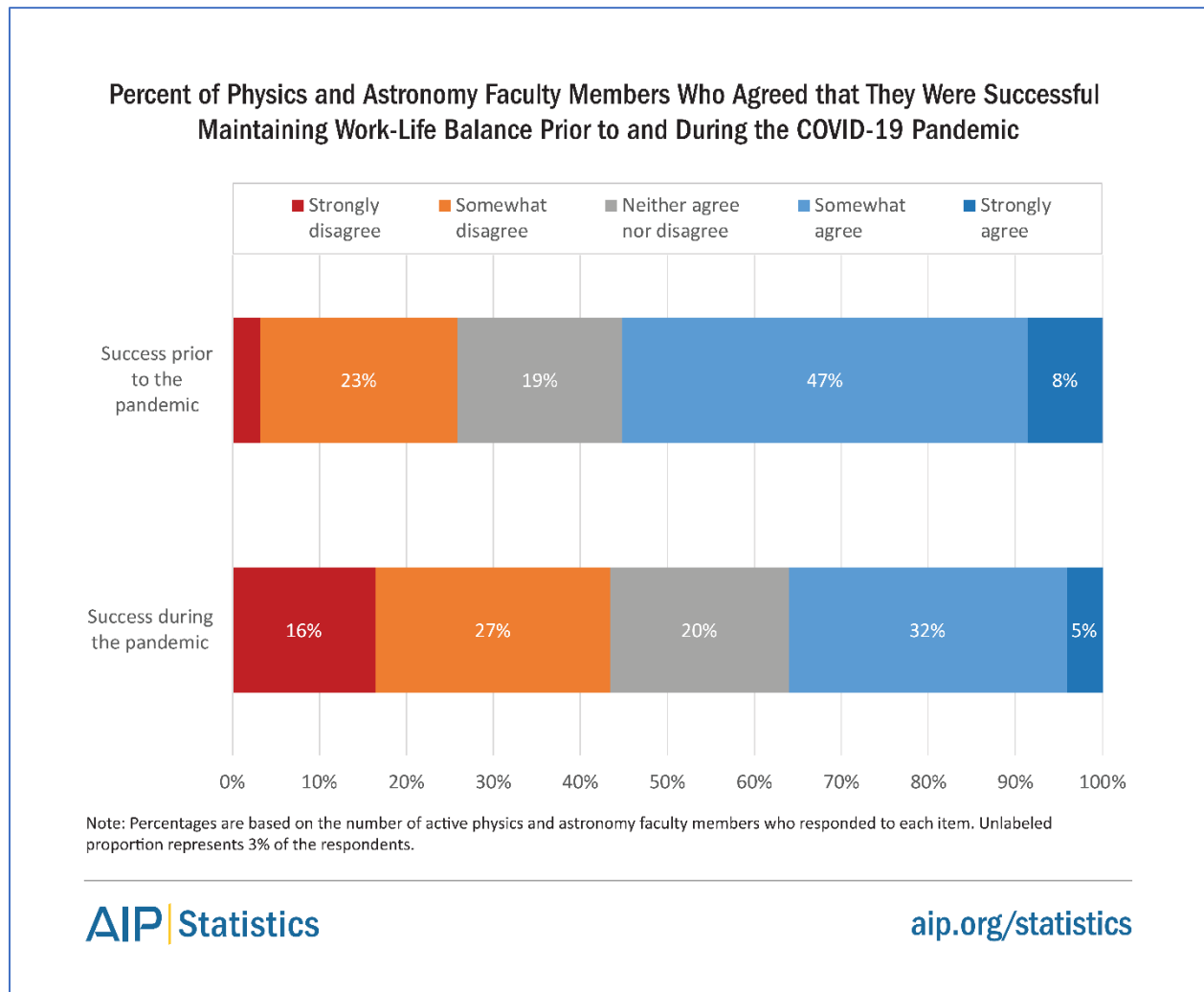
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As part of the Faculty Member Survey (FMS) administered in the spring of 2021, 1,793 physics and astronomy faculty members across 286 US physics and/or astronomy departments shared how the pandemic impacted their experiences within their department. This Focus On includes responses from the 1,407 respondents who were employed as active faculty members in physics or astronomy when the survey was administered.

## Work-Life Balance

Respondents used a 5-point Likert scale to indicate whether they felt they were successful in maintaining their work-life balance both prior to and during the pandemic. There was a decrease in work-life balance during compared to before the pandemic; 55% of faculty members reported success maintaining that balance prior to the pandemic, but only 37% reported success during the pandemic (**Figure 1**).

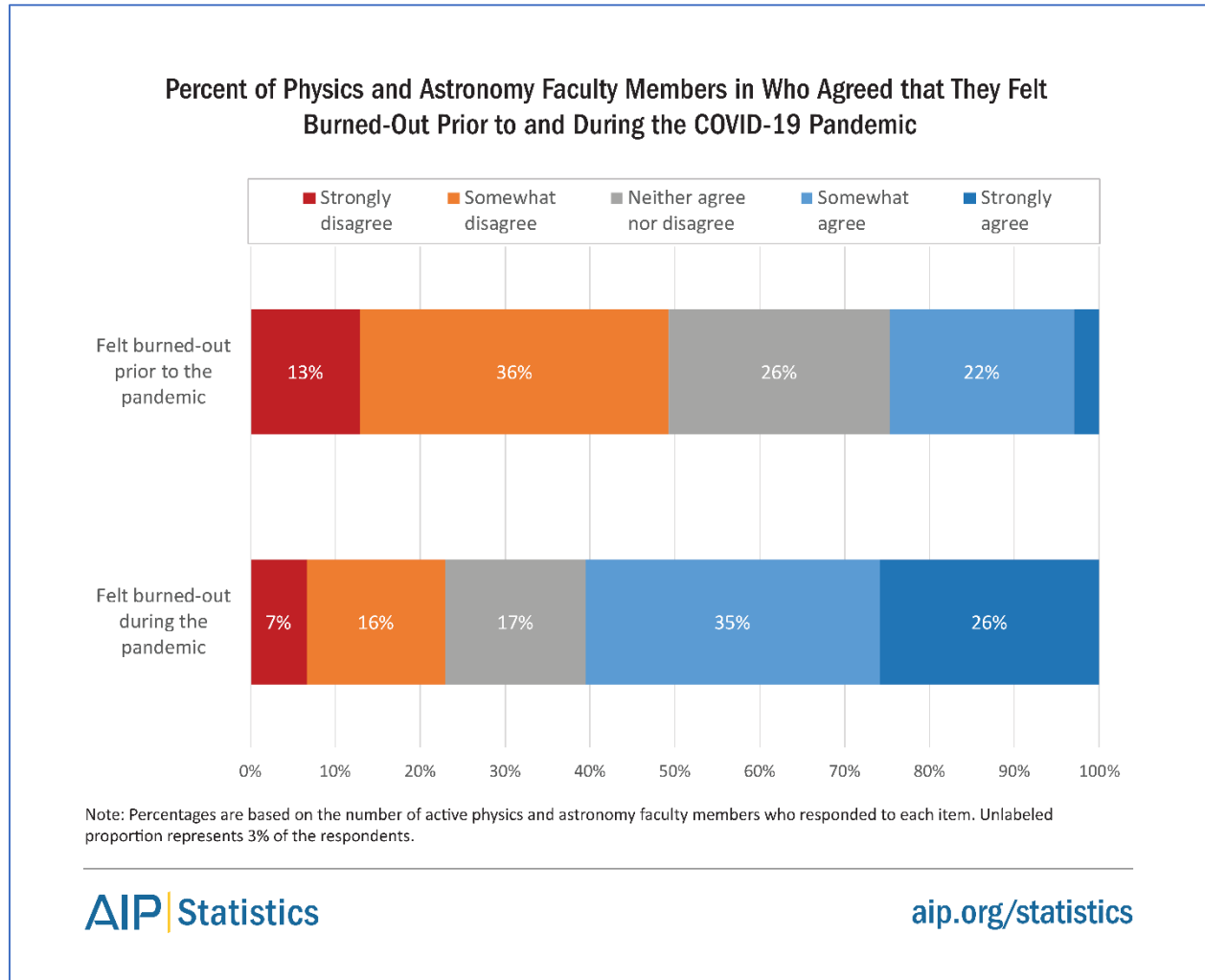
**Figure 1**



## Burnout

Respondents again used a 5-point Likert scale to indicate whether they felt burned-out both prior to and during the pandemic. We observed an increase in burnout. While 25% of faculty felt some level of burn-out prior to the pandemic, 61% reported feeling burned out during the pandemic (**Figure 2**).

**Figure 2**



## Concerns about Professional Future

These negative consequences for well-being may be largely due to the changes which faculty members had already experienced, but they also may be, in part, due to their concerns for the future. Using a checklist of seven possible concerns, 64% percent of faculty members indicated they were concerned about at least one aspect of their professional futures. The most commonly reported concern was reduced research funding (**Table 1**); however, the likelihood of selecting each concern differed based on whether faculty were employed in bachelor's-, masters'-, or PhD granting departments.

**Table 1**

**Percent of Physics and Astronomy Faculty Members Who Reported Concerns about Their Professional Future as a Result of the COVID-19 Pandemic by Highest Degree Granted, Spring 2021**

<b>Future Concerns</b>	<b>Bachelor's-granting (N = 519)</b>	<b>Master's-granting (N = 87)</b>	<b>PhD-granting (N = 614)</b>
Research funding reductions	33%	39%	51%
TA reductions	13%	31%	38%
Job loss	23%	21%	10%
Department closure	28%	13%	4%
Inability to receive or maintain tenure	12%	15%	9%
Institution closure	15%	-- <sup>b</sup>	3%
Other <sup>a</sup>	11%	-- <sup>b</sup>	8%
Not concerned about any of these	36%	41%	35%

Note: Percentages are based on the number of active physics and astronomy faculty members in each type of department who responded to the item. Total percent is not 100% because respondents were able to select more than one response. Respondent-reported future concerns statistically significantly varied based on the highest degree granted in the department according to multivariate regression analyses ( $p < .01$ ).

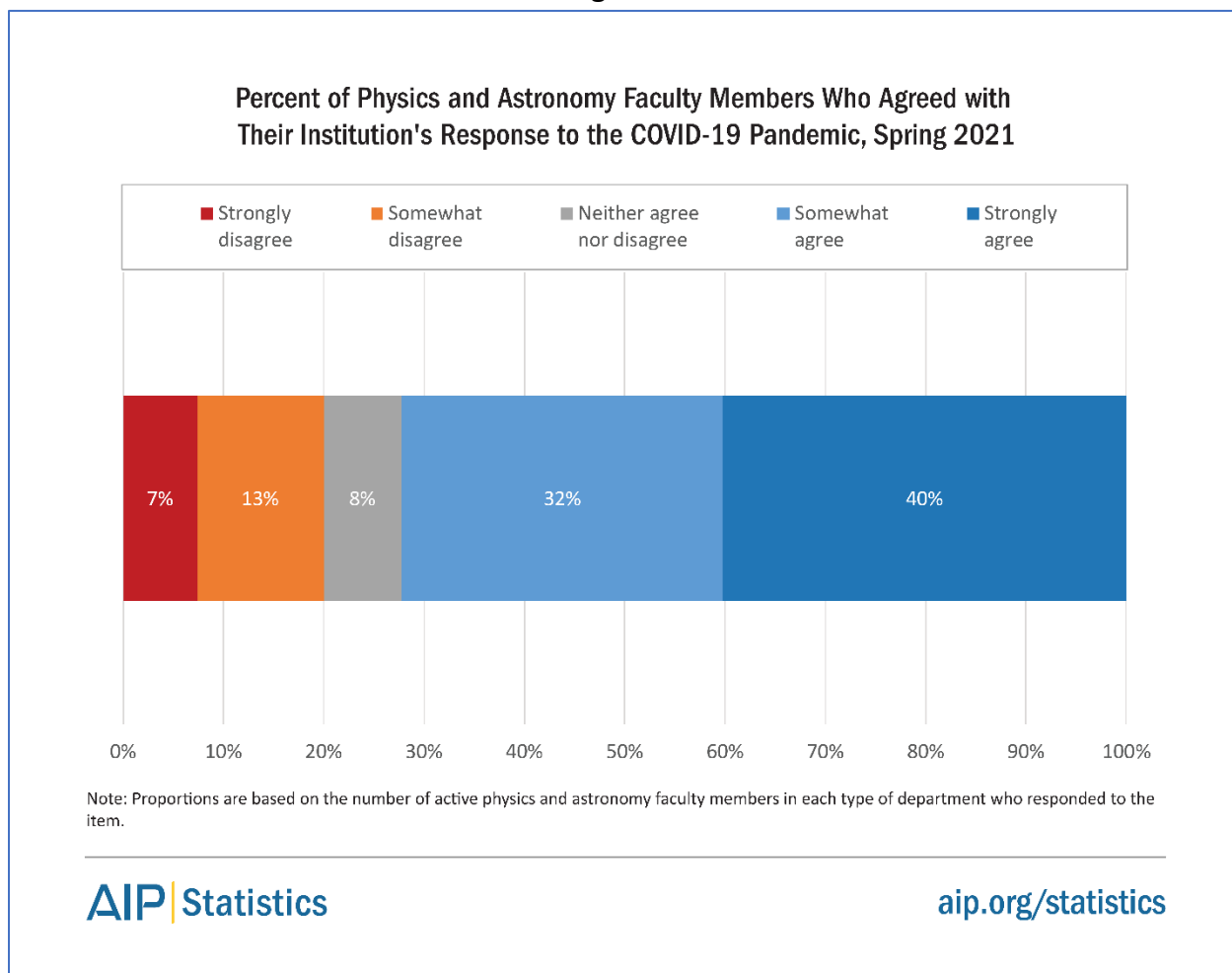
<sup>a</sup> Respondents who selected "Other" were asked to specify their future concerns; among a variety of other open-ended responses, 1% of respondents also listed department reductions and/or loss of the major.

<sup>b</sup> At least one respondent selected these options; however, too few selected it to provide an estimate.

## Agreement with Institution's Response

Despite the negative impact the COVID-19 pandemic has had and may continue to have on physics and astronomy faculty members, over 70% of faculty members at least somewhat agreed with their institution's response to the pandemic (**Figure 3**). This suggests that the faculty members are in concert with the administration, at least to some extent.

**Figure 3**



## Conclusions

In this Focus on, we outlined the ways faculty members' well-being changed during compared to before the COVID-19 pandemic. While it is possible that respondents remembered pre-pandemic times more fondly, it is likely that many faculty members faced these personal challenges as a result of the pandemic. Furthermore, regardless of the accuracy of faculty members' recall of their work-life balance and experiences of burnout prior to the pandemic, their *perceptions* of those experiences, and specifically changes in their experiences, likely directly impacted their well-being. Respondents in the Faculty Member Survey also reported changes in time allocation (see [related AIP Focus On<sup>\[1\]</sup> here](#)), less access to resources (see [related AIP Focus On<sup>\[2\]</sup> here](#)), and many adjustments made to their courses and labs, all of

which could have affected well-being during the pandemic. In future publications, we will dissect the trends presented here to determine how these experiences differ across faculty members' identities (e.g., gender and racial or ethnic identities) and positions within their department (e.g., current rank).

## **Survey Methodology**

The Faculty Member Survey is administered by the American Institute of Physics approximately every five years. The survey focuses on the demographics, training, and experiences of faculty members. In this cycle, the Statistical Research Center included a special section on the impact of the COVID-19 pandemic.

We asked 5,488 physics and astronomy faculty members across 315 US physics and/or astronomy departments to complete the Faculty Member Survey in the spring of 2021. The institutions were selected using cluster sampling; we randomly selected 39% of all US departments that offered degrees in physics, astronomy, or both physics and astronomy from 4-year colleges or universities, including both public and private institutions and oversampling Historically Black Colleges and Universities (HBCUs).

From each sampled department, we collected all faculty members' names and contact information from the department websites. All listed faculty members within those departments were emailed a link to complete the survey.

A total of 1,793 individuals from 286 departments responded to the questionnaire; however, a total of 1,407 respondents were included in the final data and this Focus On. Respondents who indicated they were not active faculty members or who were not currently working at the institution from which we collected their contact information were removed from the sample. Nearly half of active faculty members were full professors (45%), while fewer were associate professors (20%), assistant professors (17%), or in other faculty roles (15%).\*

## **References**

- [1] Walsh and Tyler (2021). Changes in Time Allocation During the COVID-19 Pandemic for Full-time Faculty Members in Physics and Astronomy.  
<https://www.aip.org/statistics/reports/changes-time-allocation-during-covid-19-pandemic-full-time-faculty>
- [2] Walsh and Tyler (2022). Changes in Access to Resources During the COVID-19 Pandemic for Faculty Members in Physics and Astronomy.  
<https://www.aip.org/statistics/reports/covid-faculty-resources>

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\* These numbers are similar to those collected in AIP's Academic Workforce survey, in which the chair from each physics and astronomy department in the US was asked to report the number and rank of all faculty members in the department. Therefore, we believe this sample is a good representation of the population of physics and astronomy faculty member ranks in the US.

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